

**Notification of Reasons for Refusal**

Japanese Patent Application No.: 2002-316039

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5 Applicable Articles: §29 (1), §29 (2)

**Reasons for Refusal**

1. The inventions concerning the following claims are rejected because they were the inventions which were described in the

10 following publications distributed in Japan or elsewhere prior to the filing of the patent application or made available to the public thorough electric communication line in Japan or elsewhere prior to the filing of the patent application, referring to § 29(1) III.

15 2. The inventions concerning the following claims are rejected because they were easily made, prior to the filing of the patent application, by a person with ordinary skill in the art to which the invention pertains, on the basis of an invention or inventions described in the following publications distributed in Japan or

20 elsewhere prior to the filing of the patent application or made available to the public thorough electric communication line in Japan or elsewhere prior to the filing of the patent application, referring to § 29 (2).

25 **Note**

1. Claims 1 and 2 (hereinafter, referred to as "inventions 1 and 2 of this application")

(1) Cited reference 1, Reasons for refusal 1 and 2

In Cited reference 1, there is described an invention of 30 "a plate stack cell composed by stacking unit cell elements each of which is formed of a positive electrode, a negative electrode, and a nonfluid electrolyte layer such as a solid-state

electrolyte, wherein each unit cell element is formed by filling the electrolyte in cavities of a porous spacer thereof, and the positive electrodes and the negative electrodes are separated from each other" (claim 1, paragraph 0021, paragraph 0054).

5 (Hereinafter, this is referred to as "the invention of Cited reference 1".)

"The porous spacer" in the invention of Cited reference 1 has a function to prevent a short circuit by separating the positive electrode and the negative electrode from each other 10 (paragraph 0021) as in this application, and accordingly, can be said to be "a frame member" of Invention 1 of this application.

In Cited reference 1, the porous sheet of Invention 2 of this application is described. (paragraph 0053)

(2) Cited reference 2, Reasons for refusal 1 and 2

15 In Cited reference 2, there is described an invention of "a cell including a cell element composed of unit cell elements each of which is formed of a positive electrode, a negative electrode, and an electrolyte layer, wherein the electrolyte layer uses a spacer formed of a porous membrane as a support body, 20 and is composed by immersing an electrolyte containing a crosslinkable polymer thereinto" (claim 1). (Hereinafter, this is referred to as "the invention of Cited reference 2".)

"The spacer" in the invention of Cited reference 2 can be said to be the one which separates the positive electrode and 25 the negative electrode from each other at a fixed interval, and accordingly, can be said to be "the frame member" of Invention 1 of this application.

In Cited reference 2, the porous sheet of Invention 2 of this application is described. (paragraph 0028)

30 (3) Cited reference 3, Reasons for refusal 1 and 2

In Cited reference 3, there is described an invention of "a secondary battery, comprising: a positive electrode; a

negative electrode; and an ion-conductive layer formed of a solid polymer electrolyte and the like containing spherical spacer particles which control a distance between a positive electrode active material layer and a negative electrode active material layer, the ion-conductive layer being provided between the positive electrode active material layer and the negative electrode active material layer" (claim 1, claim 4, paragraph 0029). (Hereinafter, this is referred to as "the invention of Cited reference 3".)

10 "The spherical spacer particles" in the invention of Cited reference 3 correspond to "the frame member" of Invention 1 of this application.

Moreover, in Comparative example 8 of the invention of Cited reference 3, there is described "a secondary battery, comprising: the positive electrode; the negative electrode; and a polyolefin-based separator film (corresponding to the porous sheet of Invention 2 of this application) sandwiched therebetween, wherein the solid polymer electrolyte and the like are filled between both of the electrodes" (paragraph 0078).

20 2. Claim 4 (hereinafter, referred to as "invention 4 of this application")

Cited reference 1, Reasons for refusal 1 and 2

With regard to "the porous spacer" in the invention of Cited reference 1, paragraph 0053 of Cited reference 1 describes that the porosity of the porous sheet is 10 to 95%, and accordingly, it can be said that the porous spacer is the porous sheet of Invention 4 of this application.

30 3. Claims 5 and 6 (hereinafter, referred to as "inventions 5 and 6 of this application")

Cited reference 3, Reasons for refusal 1 and 2

In paragraph 0025 and paragraph 0026 of Cited reference 3, the frame members of Inventions 5 and 6 of this application are described.

5 4. Claim 7 (hereinafter, referred to as "invention 7 of this application")

Cited references 1-3, and 4, Reason for refusal 2

For example, as also described in Cited reference 4, a polymer cell composed by stacking a plurality of bipolar 10 electrodes in series while sandwiching polymer electrolyte layers therebetween is well known. Accordingly, it is a thing appropriately performable by those skilled in the art that the bipolar electrodes are used as the electrodes in any of the inventions of Cited references 1 to 3.

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5. Claim 8 (hereinafter, referred to as "invention 8 of this application")

(1) Cited reference 1, Reasons for refusal 1 and 2

In Cited reference 1, positive electrode active material 20 and negative electrode active material of Invention 8 of this application are described. (paragraph 0045, 0046)

(2) Cited reference 2, Reasons for refusal 1 and 2

In Cited reference 2, positive electrode active material and negative electrode active material of Invention 8 of this 25 application are described. (paragraph 0038, 0039)

(3) Cited reference 1, Reasons for refusal 1 and 2

In Cited reference 3, positive electrode active material and negative electrode active material of Invention 8 of this application are described. (paragraph 0024)

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6. Claim 9 (hereinafter, referred to as "invention 9 of this application")

(1) Cited reference 3, Reasons for refusal 1 and 2

"The ion-conductive layer formed of the solid polymer electrolyte" of the invention of Cited reference 3 corresponds to the polymer electrolyte layer of Invention 9 of this 5 application.

(2) Cited reference 1 (or 2), Reason for refusal 2

Since it is well known that the solid-state polymer is used as the electrolyte of the polymer cell, it is a thing appropriately performable by those skilled in the art that the electrolyte of 10 Invention 9 of this application is used as the electrolyte.

7. Claim 10 (hereinafter, referred to as "invention 10 of this application")

Cited references 1-3, Reason for refusal 2

15 Since a battery pack in which a plurality of the polymer cells are mutually connected is well known, it is a thing appropriately performable by those skilled in the art that the battery pack is composed by mutually connecting a plurality of the polymer cells of the inventions of Cited references 1 to 3.

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8. Claim 11 (hereinafter, referred to as "invention 11 of this application")

Cited references 1-3, Reason for refusal 2

25 Since a vehicle on which the polymer cell or the battery pack of the polymer cells is mounted as a driving power supply is well known, it is a thing appropriately performable by those skilled in the art that the cells of the inventions of Cited references 1 to 3 are mounted as the driving power supplies on the vehicle.

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**List of Cited References**

1. Japanese Patent Application Laid-Open Publication 2001-357882

2. Japanese Patent Application Laid-Open Publication 2002-184466
3. Japanese Patent Application Laid-Open Publication H11-307124
4. Japanese Patent Application Laid-Open Publication 2002-216846